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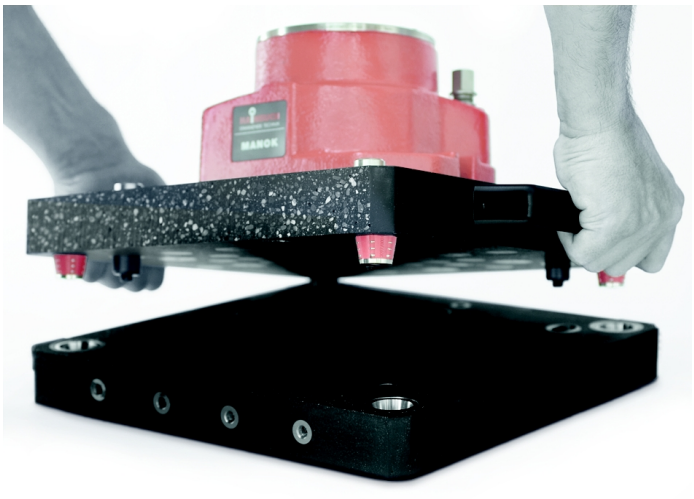

Installation manual

CENTREX pallet system
CENTREX kwik pallet system

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»Translation of original installation manual«

1 General

1.1 Information about this manual

This manual enables safe and efficient handling of the clamping device.

The manual is a component of the clamping device and must be kept in the immediate vicinity of the clamping device where it is accessible for personnel at all times. Personnel must have carefully read and understood this manual prior to starting all tasks. The basic prerequisite for safe work is compliance with all the safety instructions and handling instructions in this manual.

Illustrations in this manual are provided for a basic understanding and may deviate from the actual model of the clamping device.

It is assumed that the reader is familiar with standard procedures, such as cleaning the mounting surfaces.

1.2 Description of variants

Two variants of the CENTREX pallet system are presented in this manual:

- CENTREX pallet system
- CENTREX kwik pallet system

If the variants differ in structure, installation, disassembling and maintenance or fault correction, they will be described separately.

Based on the headers, sections and action steps can always be assigned to a specific variant.

Starting with size 80, ring nuts must be used to transport the clamping device.

Usual approaches like a cleaning of the areas for screwing are presupposed to be familiar

1.3 Explanation of symbols

Safety instructions

Safety instructions are indicated by symbols in this operating manual. The safety instructions are introduced by signal words that express the scope of the hazard.

The safety instructions must be strictly adhered to, you must act prudently to prevent accidents, personal injury, and material damage.

DANGER!

… indicates an imminent dangerous situation than can result in death or serious injury if it is not avoided.

WARNING!

… indicates a possible dangerous situation that can result in death or serious injury if it is not avoided.

CAUTION!

… indicates a possible dangerous situation that can result in minor or light injury if it es not avoided.

NOTE!

… indicates a possible dangerous situation that can result in material damage if it is not avoided.

Tips and recommendations

… indicates useful tips and recommendations, as well as information for efficient and trouble-free operation.

1.4 Max. RPM

CAUTION!

The product is designed for stationary use and may not be used for rotating machining!

1.5 Limitations of liability

All information and instructions in this operating manual have been provided under due consideration of applicable standards and regulations, the current state of technology, as well as our many years of experience.

The manufacturer assumes no liability for damage due to:

- Failure to follow the instructions in the manual
- Non-intended use
- Deployment of untrained personnel
- Unauthorized conversions
- Technical changes
- Use of non-approved spare parts

The actual scope of delivery can vary from the explanations and graphic representations provided in this manual in the case of special versions, if supplemental order options are desired, or on the basis of the latest technical changes.

The agreed obligations in the delivery contract, the general terms and conditions, as well as delivery conditions of the manufacturer, and the statutory regulations valid at the time the contract was concluded, apply.

1.6 Copyright

This manual is protected by copyright and is provided exclusively for internal purposes.

Delivery of the operating manual to third parties, duplication in any form – including excerpts – as well as exploitation and/or communication of the content, are not permitted [except for internal use] without written approval from the manufacturer.

Actions to the contrary make damage compensation mandatory. We reserve the right to enforce additional claims.

1.7 Scope of delivery

All tools and accessories that are not included in the scope of delivery are marked as optional.

In scope of delivery of the CENTREX pallet system:

- 1 CENTREX base plate with eye bolt

Optionally the scope of delivery of the CENTREX pallet system:

- 1 Aluminum pallet with eye bolt and handle
- 1 pallet system or hole-grid pallet with eye bolt and handle

In scope of delivery of the CENTREX kwik pallet system:

- 1 CENTREX kwik base plate with eye bolt

Optionally the scope of delivery of the CENTREX kwik pallet system:

- 1 Aluminum pallet with eye bolt and handle
- 1 pallet system or hole-grid pallet with eye bolt and handle

1.8 Spare parts

WARNING!

Safety risk if the wrong spare parts are used!

Incorrect or defective spare parts can cause damage, malfunction, or total failure; they can also impair safety.

- Only use manufacturer's original spare parts.

Only purchase spare parts from authorized dealers or direct from the manufacturer. Addresses are in the appendix.

1.9 Warranty terms

The warranty terms are included in the manufacturer's terms and conditions.

2 Safety

This section provides an overview o fall the important safety aspects for optimal protection of personnel, as well es for safe and trouble-free operation.

2.1 Responsibility of the customer

The device is used in industrial applications. Consequently the owner of the device is subject to legal industrial safety obligations.

In addition to the safety instruction in this manual, generally valid safety and accident protection guidelines, and environmental protection guidelines must be adhered to and complied with for the area of implementation of the device.

2.2 Personnel requirements

WARNING!

Danger of injury due to insufficient qualification!

Improper handling of the clamping device can cause serious injury or material damage.

- Only have activities performed by personnel who are qualified to perform these activities.

The following qualifications are cited in the operating manual for the various activity areas.

- Specialized personnel
  are personnel who due to their specialized training, skills, and experience, as well as knowledge of the applicable regulations, are capable of executing the tasks assigned to them and of recognizing and avoiding possible hazards on their own.
- Hydraulic specialist
  The hydraulic specialist has been trained for the particular task area in which he is active and is familiar with the relevant standards and regulations. Due to his specialized training and experience the hydraulic special-

ist can perform tasks on hydraulic equipment and recognize and avoid possible dangers on his own.

- **Electric specialist**
  The electric specialist has been trained for the particular task area in which he is active and is familiar with the relevant standards and regulations.
  Due to his specialized training and experience the electric specialist can perform tasks on electric equipment and recognize and avoid possible dangers on his own.

Only persons from whom it can be expected that they reliably execute their work are considered as personnel. Persons whose capability to react is impaired, for instance through drugs, alcohol, or medication, are not approved.

- Comply with age-specific and job-specific regulations that are applicable at the installation site when selecting personnel.

2.3 Intended use

The CENTREX pallet system is designed for mounting on a machine table and for stationary machining. It is designed for stationary use and may not be used in machine tools.

The CENTREX pallet system only be mounted, operated, maintained, and cleaned by instructed, specialized personnel.

Intended use also includes compliance with all the instructions in this manual.

Any use that extends beyond the intended use, or any other use of the clamping device is considered to be misuse and can cause dangerous situations.

WARNING!

Danger due to misuse!

Misuse of the CENTREX pallet system can cause dangerous situations.

Particularly refrain from the following uses of the CENTREX pallet system:

- Use in machines [machine tool]
- Use in turning machining.
- Use with technical data other than that specified on the CENTREX pallet system .

Claims of any type due to damage arising from non-intended use are excluded.

2.4 Personal protective equipment

Wearing of personal protective equipment is required to minimize health hazards when working with the device.

- Always wear the protective equipment necessary for the respective task when working with the device.
- Follow the instructions that have been posted in the work area.

Always wear

For all tasks always wear:

Protective work clothing

is tight-fitting work clothing with low resistance to tearing, with tight sleeves, and without projecting parts. It is primarily used to protect against entanglement by moving machine parts.

Do not wear rings, chains, or other jewelry.

Safety footwear

for protection against heavy falling parts and slipping on slippery substrates.

For special tasks wear

Special protective equipment is required when executing special tasks. Separate reference is made to this equipment in the specific sections of this manual. This special protective equipment is explained below:

Hard hat

to protect against falling and flying parts and materials.

Protective goggles

to protect eyes from flying parts and liquid splashes.

Protective gloves

to protect hands from friction, abrasion, puncture wounds, or deeper injuries, as well as from contact with hot surfaces.

2.5 Special dangers

In the following section residual risks are cited that occur due to installation of the clamping device in a machine tool. In each case the residual risks that have been determined based on a risk analysis of the machine must be specified by the customer.

- Follow the safety instructions listed here and the warnings in the other sections of this manual to reduce health hazards and to avoid dangerous situations.

Horizontal / lying parts

WARNING!

Danger of injury due to horizontal parts!

Before transporting the clamping device in horizontal condition:

- Put the clamping device on a non-slip pad
- Screw in the eye bolts

Suspended loads

WARNING!

Life-threatening danger due to suspended loads!

Some clamping devices must be lifted with a crane. When lifting the clamping device there is a life-threatening hazard due to falling parts or parts swinging out of control.

- Never step under suspended loads.
- Comply with the instructions concerning the intended attachment points. Ensure that the sling gear is securely seated!
- Do not attach lifting gear in projecting components.
- Only use approved hoists and sling gear with sufficient bearing capacity.
- Do not use rope and belts that are torn or frayed.

Moving parts

WARNING!

Danger of injury due to moving parts!

Rotating parts of the clamping device can cause serious injuries.

- Do not reach into moving parts or handle moving parts during operation.
- Note the gap dimensions of moving parts.
- Do not open covers when the device is in operation.
- Be aware of afterrun time:
  Prior to opening the covers ensure that all parts have come to a standstill.
- Wear tight-fitting protective work clothing in the danger zone.

Wrong clamping of the work piece

WARNING!

Danger of injury due to incorrect clamping of the work piece!

Incorrect work piece clamping may lead to the ejection of the work piece and result in serious injuries.

Underdimensioned (tolerance) parts can lead to incorrect clamping!

- Check the unmachined work pieces at random on dimensional accuracy.

Too low supply pressure can lead to the reduction of clamping force!

Too high supply pressure can lead to damage of the components of the clamping device!

- Check and adjust, if necessary, the supply pressure regularly.
- Do random checks of the unmachined work pieces on dimensional accuracy.

Missing changing parts

WARNING!

Danger of injury due to missing changing parts!

When operating the clamping device without changing parts [segmented clamping bushing, clamping heads, work piece end-stops] there is a higher danger of crushing injuries due to the stroke of movable components of the clamping device.

- The clamping process may not be initiated without assembled segmented clamping bushing and/or work piece end-stop.

WARNING!

Risk of injury!

When screwing in individual components such as for example work piece end-stops, threaded adapters and similar devices that are equipped with an external thread or wear caused by burrs, there is risk of cutting.

- The operation must be done only by qualified personnel.
- Wearing of gloves / [PSA] is required!

2.6 Functionality

NOTICE!

With high contamination of the clamping device the functionality is no longer guaranteed.

- The cleaning and maintenance intervals must be observed.

2.7 Environmental protection

NOTE!

Environmental hazard due to incorrect handling!

Incorrect handling of environmentally hazardous substances, particularly improper disposal, can cause significant environmental damage.

- Always comply with the instructions cited below
- If environmentally harmful substances should inadvertently get into the environment, initiate suitable measures immediately. If in doubt notify the responsible municipal authority about the damage.

The following environmentally harmful substances are used:

Lubricants

Lubricants like greases and oils can contain toxic substances. Ensure that they do not get into the environment.

The device must be disposed of by a specialized disposal company.

To achieve trouble-free operational performance of the clamping device only use HAINBUCH lubricants. See the appendix for reference addresses.

2.8 CFK

In case of visible damage or visible wear of the carbon parts:

- Further processing only after consultation with HAINBUCH.

3 Technical data

3.1 General information

For the pallet system CENTREX and CENTREX kwik different pallets are available.

3.1.1 Base plate CENTREX pallet system

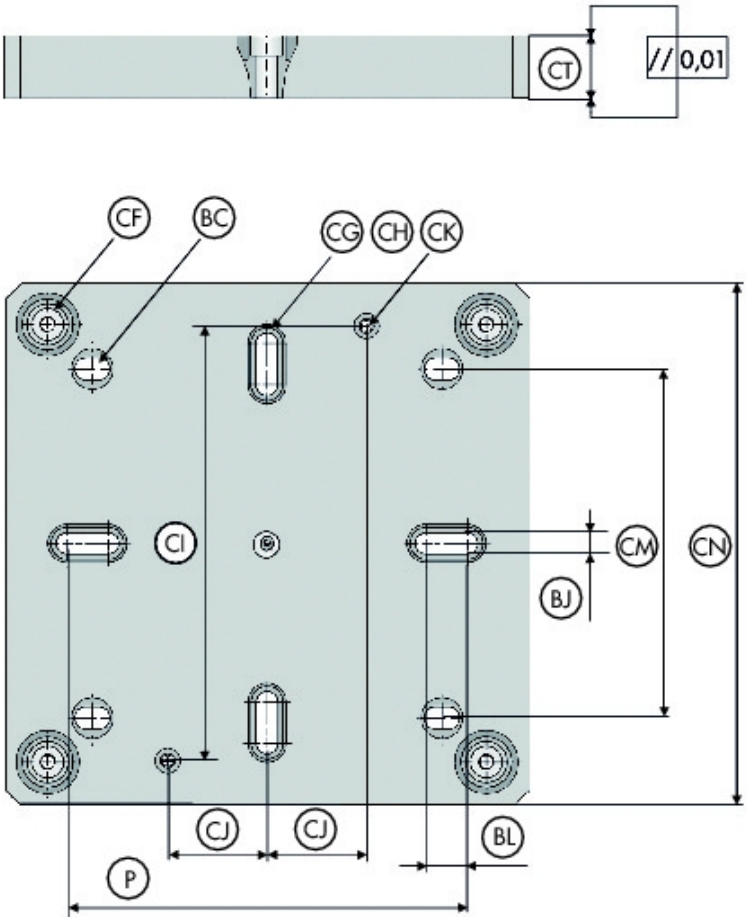


Fig. 1

Outer dimensions [square]	CN	330 x 330
Repeatability [mm]		0,003
Bushings	CF	Positioning element bushing [4x]
Plate thickness [mm]	CT	40
Distance of the eye bolt thread in the x-direction [mm]	CJ	53,5
Distance of the eye bolt thread in thy y-direction [mm]	CI	276
Eye bolt thread	CK	M10 [2x]
Distance of the quick change unit [mm]	CM	220 x 220
Screw connection width [mm]	P	252
Grooves [mm]	BL	46 [4x]
Groove width [mm]	BJ	13,5
Mounting slots for T-groove table with groove spacing [mm]	CG	63; 80; 100
Mounting slots for hole grid machine tables with hole spacing [mm]	CH	40; 50; 100
Max. actuating torque [Nm]	BC	59
Weight. [kg]		12
Order no.		1206/0001

3.1.2 Base plate CENTREX kwik pallet system

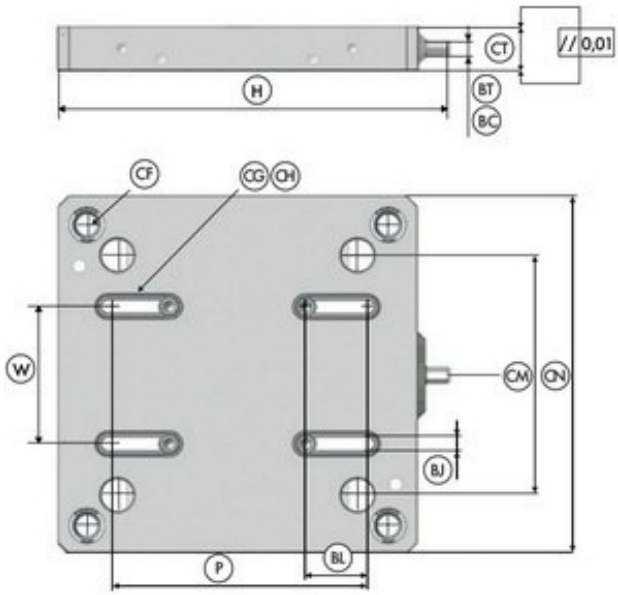


Fig. 2

Outer dimensions [square]	CN	330 x 330
Repeatability [mm]		0,003
Bushings	CF	Positioning element bushing [4x]
Plate thickness [mm]	CT	40
Distance of the quick change unit [mm]	CM	220 x 220
Screw connection width [mm]	P	237
Bolt hole distance [mm]	W	126
Grooves [mm]		56 [4x]
Groove width [mm]		13,5
Mounting slots for T-groove table with groove spacing [mm]	CG	63; 80; 100
Mounting slots for hole grid machine tables with hole spacing [mm]	CH	40; 50; 100
Max. actuating torque [Nm]	BC	20
Wrench size [SW]		15
Length [mm]		358
Weight [kg]		29
Order no.		10458/0001

3.1.3 Pallet system

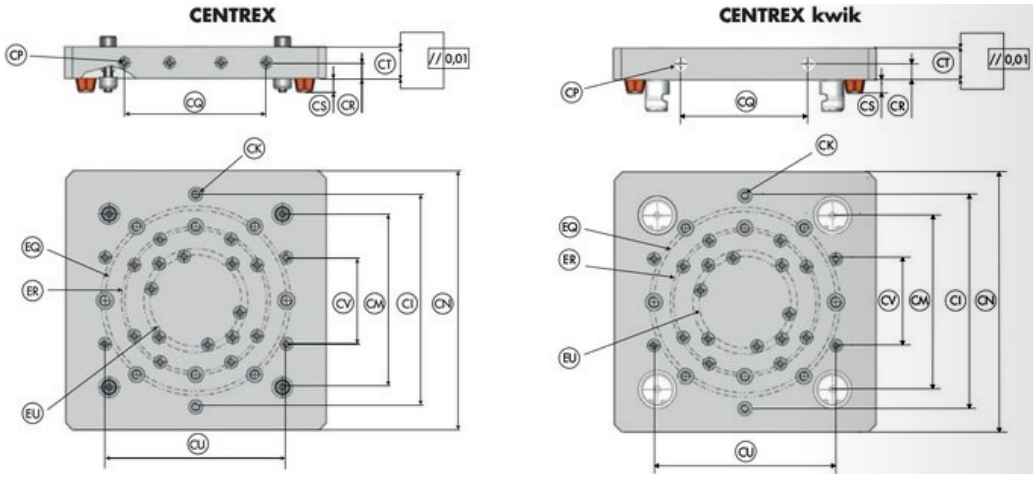


Fig. 3

Variant		CENTREX pallet system	CENTREX kwik pallet system
Outer dimensions [square]	CN	330 x 330	
Repeatability [mm]		0,003	
Plate thickness [mm]	CT	40	
Distance of the ring nut thread in the y-direction [mm]	CI	270	
Eye bolt thread	CK	M10 [2x]	
Spacing handle bores [mm]	CQ	160	
Handle bore height [mm]	CR	20	
Handle fastening	CP	M8 [4x]	
Distance of the quick change unit [mm]	CM	220 x 220	
Centering taper height [mm]	CS	17	
Hole spacing in x [mm]	CU	230	
Hole spacing in y [mm]	CV	110	
Bolt hole circle for MANOK plus	EQ	LK ø 230 [2 x M14]	
Bolt hole circle for MANOK / msdock	ER	LK ø 188 [2 x M12]	
Bolt hole circle for hsdock	EU	LK ø 116 [4 x M8]	
Weight [kg]		15	
Order no.		1207/0001	10461/0001

3.1.4 Hole-grid pallet

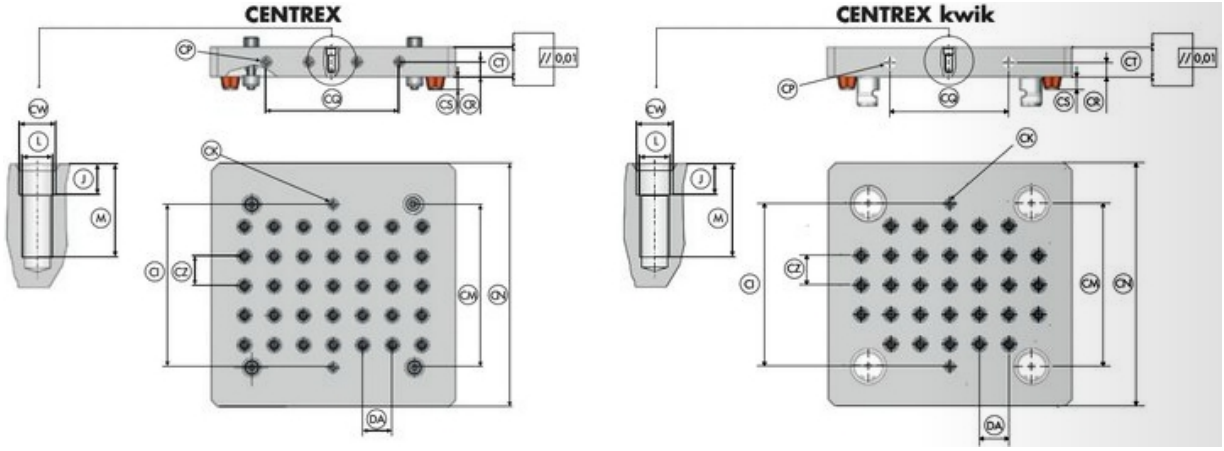


Fig. 4

Variant		CENTREX pallet system	CENTREX kwik pallet system
Outer dimensions [square]	CN	**330 x 330**	
Repeatability [mm]		0,003	
Plate thickness [mm]	CT	40	
Distance of the eye bolt thread in the x-direction [mm]	CI	220	
Eye bolt thread	CK	M10 [2x]	
Spacing handle bores [mm]	CQ	160	
Handle bore heigth [mm]	CR	20	
Handle fastening	CP	M8 [8x]	
Distance of the quick change unit [mm]	CM	220 x 220	
Centering taper height [mm]	CS	17	
Grid spacing in the x-direction [mm]	DA	40	
Grid spacing in the y-direction [mm]	CZ	40	
Countersink ø	CW	Ø 12 f7	
Height [mm]	J	10	
Thread size [M]	L	10	
Depth of thread [mm]	M	26	
Weight [kg]		13	15
Order no.		1207/0003	10461/0002

3.1.5 Aluminum pallet

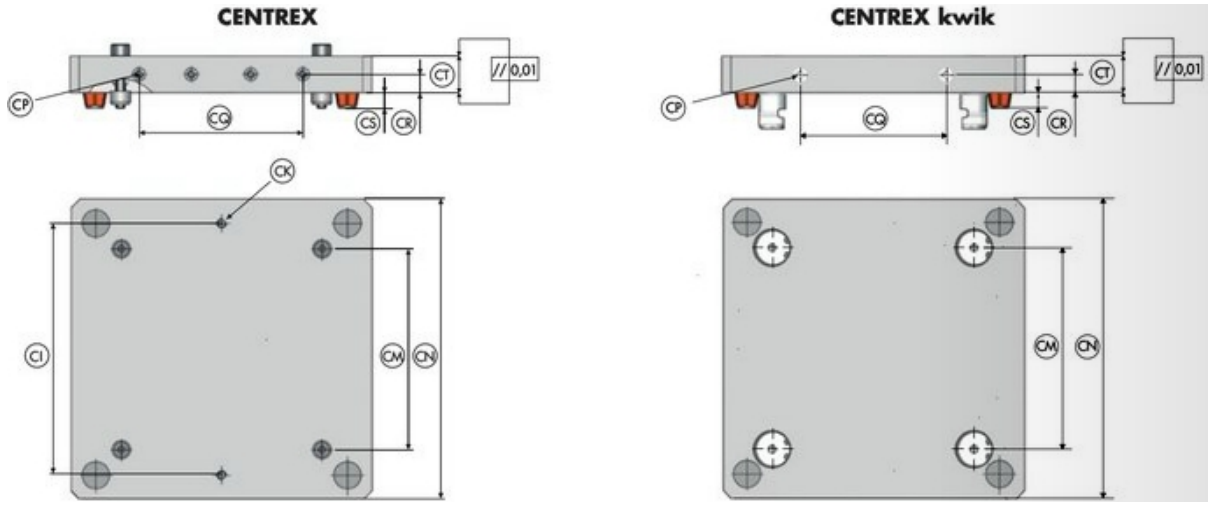


Fig. 5

Variant		CENTREX pallet system	CENTREX kwik pallet system
Outer dimensions [square]	CN	330 x 330	
Repeatability [mm]		0,003	
Plate thickness [mm]	CT	40	
Distance of the eye bolt thread in the y-direction [mm]	CI	276	
Eye bolt thread	CK	M10 [2x]	
Spacing handle bores [mm]	CQ	160	
Handle bore height [mm]	CR	20	
Handle fastening	CP	M8 [4x]	
Distance of the quick change unit [mm]	CM	220 x 220	
Centering taper height [mm]	CS	17	
Weight [kg]		14	13
Order no.		1207/0003	10461/0002

3.2 Operating conditions

Environment	Specification	Value	Unit
	Temperature range	15 - 65	°C

3.3 Power specifications

NOTE!

Material damage if the power specifications do not agree!

If the power specifications of clamping device, machine adapter and machine do not agree, severe damage extending to total damage can occur.

- Only operate clamping devices and adapters in machines with the same power specifications.

Information on maximum clamping force and drawtube force is provided on the clamping device and the adapter.

3.4 Dimensional sheet

Dimension sheets for the respective product can be requested from HAINBUCH.

3.5 Type designation

Fig. 6

The type designation is on the product and includes the following information:

- ID no.

4 Structure and function

4.1 Overview and brief description

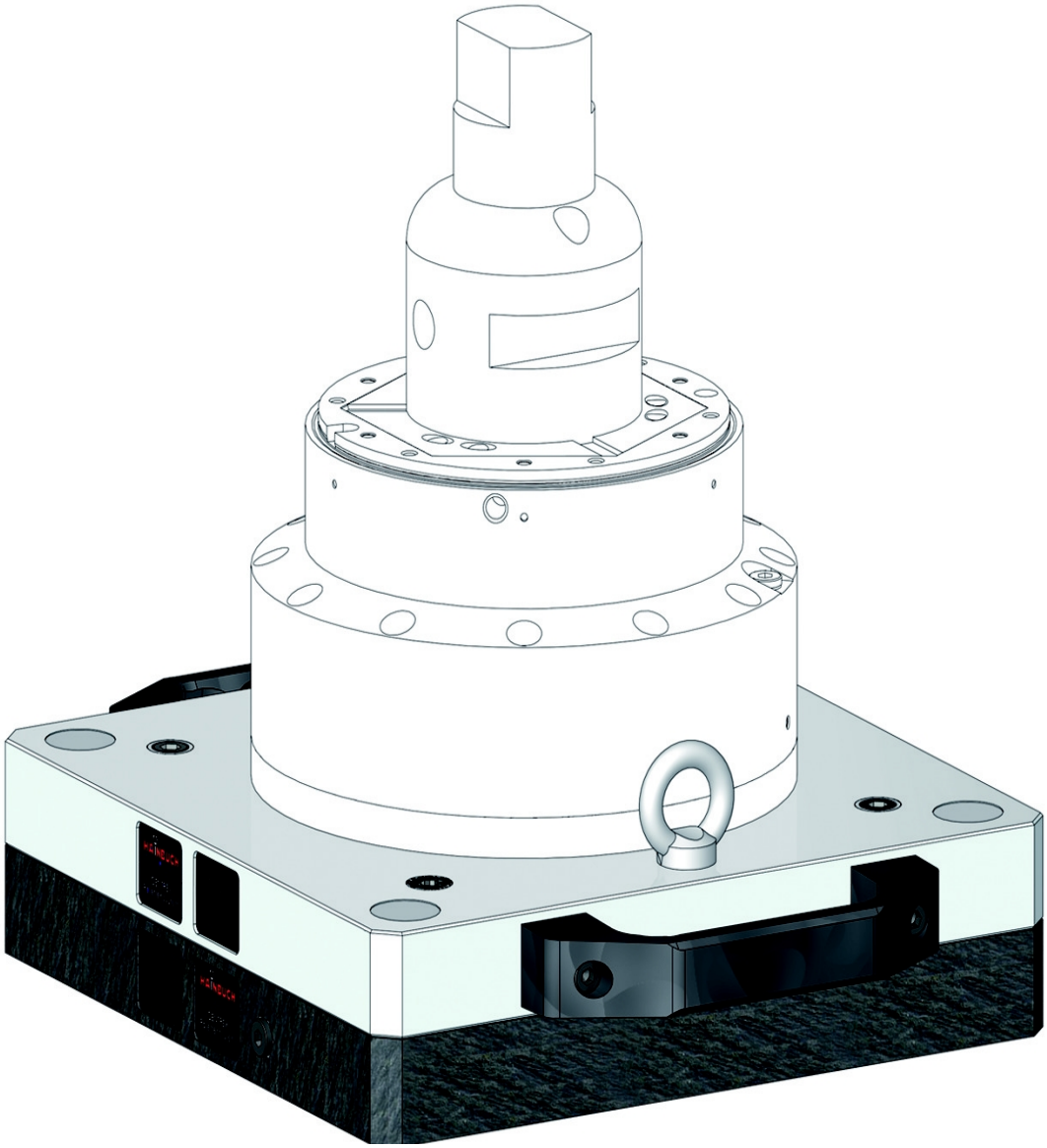


Fig. 7

Solid mounting of the pallets with rapid-action screws on the base plate. No additional actuating medium.

Advantages

- Easy manual actuation
- No peripherals, easy maintenance

4.2 Overview and brief description CENTREX kwik pallet system

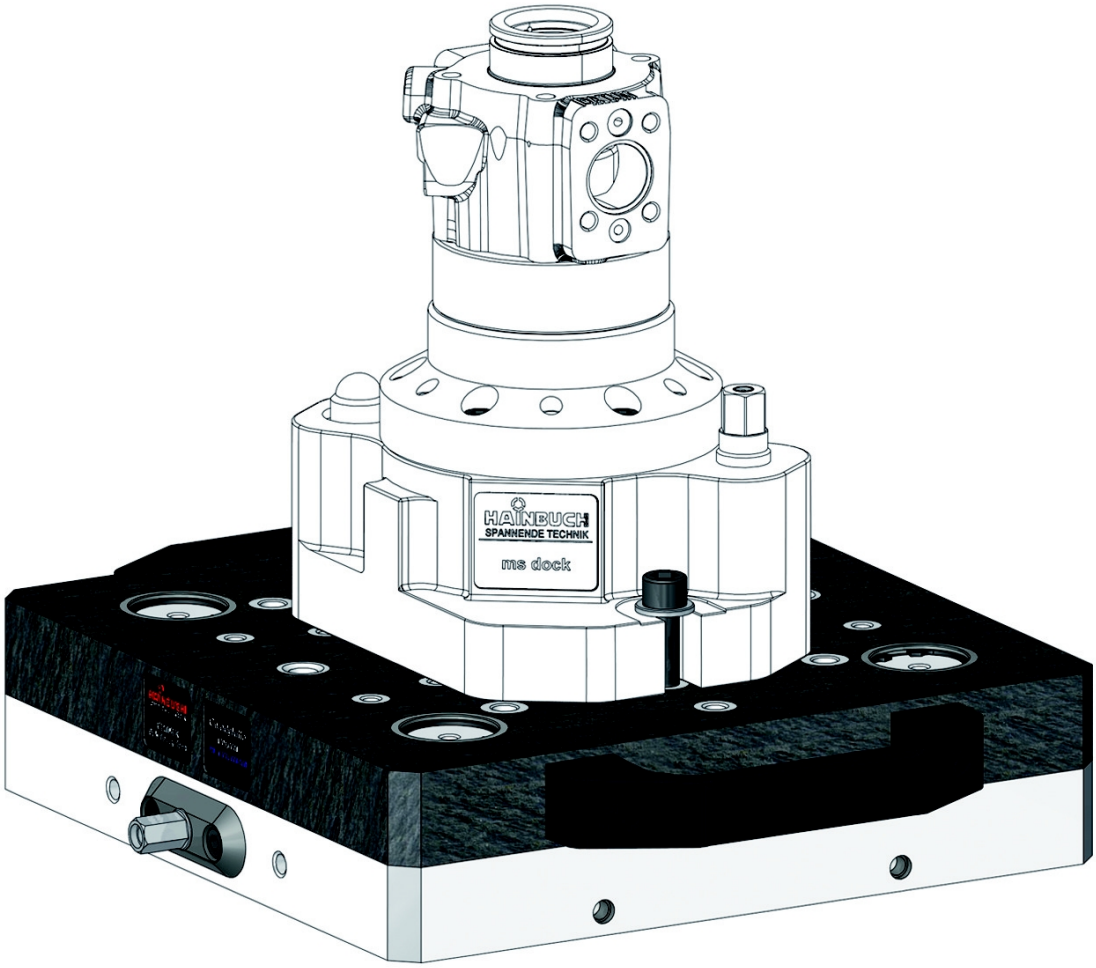


Fig. 8

Draw-in and locking elements clamp the device pallet and base plate via the centering bolt – form and force fit.

Advantages:

- Extremely fast manual activation [with e.g. a cordless screwdriver]
- Full utilization of the pallet system
- Automated actuation can be retrofitted [pneumatic, hydraulic or electric]

4.3 Optional Accessories

The accessories described here are not included in the scope of delivery.

Specially developed accessories are available for each product. Trouble-free and precise function of HAINBUCH clamping devices is only ensured when using original HAINBUCH segmented clamping bushings.

4.3.1 Handle

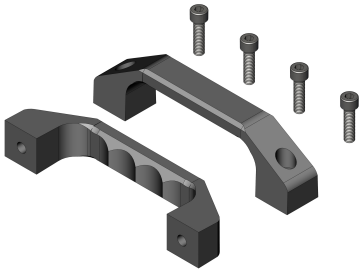


Fig. 9

The handle is designed for manual changing of the pallet. It is suitable to

- CENTREX pallet system and
- CENTREX kwik pallet system.

The handle has the order no. 3037/0001 and can be ordered from HAINBUCH.

4.3.2 Position locking mechanism

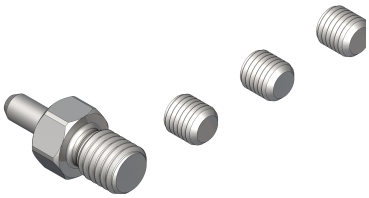


Fig. 10

The position locking mechanism may only put in one defined position. It is suitable to

- CENTREX pallet system and
- CENTREX kwik pallet system.

The position locking mechanism has the order no. nh.112/0010 and can be ordered from HAINBUCH.

4.3.3 Grease

Fig. 11

The universal grease for chuck and mandrel lubrication is supplied in a 1000g can. The order number for the universal grease is 2085/0003; it can be ordered from HAINBUCH.

5 Transporting, packaging and storing

5.1 Safety instructions for transporting

Unbalanced package

WARNING!

Danger of falling due to an unbalanced package

Packed goods can have an unbalanced package. If attached incorrectly the package can tip and cause life-threatening injuries.

- Note the markings on the packages.
- Attach the crane hook in such a manner that it is located above the center of gravity.
- Carefully lift and see if the load tilts. If necessary change the attachment.

5.2 Symbols on the packaging

Fragile

Identifies packages with fragile or sensitive contents.

Handle the packed goods with care; do not allow them to fall, and do not subject them to impact.

Protect from moisture

Keep packed goods dry and protected against moisture.

5.3 Transport inspection

Check delivery immediately upon receipt to ensure that delivery is complete and to identify any transport damage.

Proceed as follows it there is apparent external damage:

- Do not accept the delivery, or only accept it with reservation.
- Note the extend of transport damage on the transport documents or on the transport company's delivery ticket.
- Submit a complaint.

Report any defect as soon as it is detected. Claims for damage compensation can only be enforced during the applicable periods for giving notice of lack of conformity.

5.4 Unpacking and inner-company transportation

The CENTREX pallet system is packed horizontally

To safely lift the CENTREX pallet system out of the package it must be hooked into a crane depending on the weight.

For transporting with transport trolley the CENTREX pallet system must be positioned in standing condition. Make sure that a non-slip pad has been laid.

All tools and accessories which are not in scope of delivery are marked as optional in the operating instructions.

- Two people are required for this task.
- Special tools required:
  - Crane
  - Lifting eye bolts

1. Screw lifting eye bolt into the threads in the CENTREX pallet system.
2. Hook the load-handling equipment into the lifting eye bolt.
3. Use a crane to carefully lift the CENTREX pallet system out of the transport packaging and put it down on a stable, level substrate.

5.5 Packaging

About the packaging

Individual packages are packed according to the expected transport conditions. Environmentally-friendly materials have been used exclusively for the packaging.

Packaging should protect the specific components from transport damage, corrosion, and other damage until installation. Therefore do not destroy the packaging, remove it just before installation.

The packed goods are sealed in foil airtight and packed in cartons. See the »Technical Data« section for the specific weight of the respective sizes.

Handling packaging materials

Dispose of packaging materials in accordance with the respectively valid statutory regulations and local guidelines.

NOTE!

Improper disposal causes environmental damage!

Packaging materials are valuable raw materials and in many cases they can be reused, or they can be effectively treated and recycled.

- Dispose of packaging materials in an environmentally responsible manner.
- Comply with locally applicable disposal guidelines. If necessary commission a specialized company to dispose of packaging.

5.6 Storing

Under certain circumstances instructions for storage and subsequent storage are affixed to the packages that extend beyond the requirements cited here.
Comply with these instructions accordingly.

Storage of packages

Only store packages under the following conditions:

- Do not store outdoors.
- Store in a dry and dust-free location
- Do not expose to aggressive media
- Protect from direct sunlight
- Avoid mechanical vibration
- Storage temperature: 15 bis 35 °C
- Relative humidity: max. 60 %
- For storage periods longer than 3 months:
  - Check the general condition of all parts and the packaging at regular intervals.
  - Touch up or re-apply anti-corrosion agents as needed

Subsequent storage

Only re-store the product under the following conditions:

- Thoroughly clean the product prior to subsequent storage [see section »Cleaning«]
- Thoroughly oil and grease the product. [see section »Cleaning«]
- Store the product device in airtight foil.

6 Assembly

6.1 Preparations

The total weight of the CENTREX pallet system and/or CENTREX kwik pallet system depends on the size and can be as much as 30 kg [see section »Technical data«].

Depending on the weight, to safely lift the CENTREX pallet system and/or CENTREX kwik pallet system out of the package and position it in the machine table it must be hooked into a crane.

WARNING!

Danger of injury due to falling components!

When mounting components can fall and cause severe injury and material damage.

- Two people are always required for this task.
- Use a crane.

6.2 Assembly of the pallet system

WARNING!

Danger of injury due to unintentional startup of the tool spindle!

Unexpected start up of the tool spindle can cause severe injury.

- The pallet systems CENTREX and CENTREX kwik are <u>not</u> allowed for use in a drilling machine!

6.2.1 Assembling the base plate

NOTE!

The base plate may be built only on a flat machine table.

- Make sure that the planarity is less than 0.01 mm.
- For mounting use screws DIN EN ISO 4762 - 4 x M12.
- The screws must not protrude when attached via the long holes.

Tightening torque

For tightening the screws only use the following tightening torques:

DIN EN ISO 4762 - M12

Property class	Tightening torque
8.8	80 Nm
10.9	117 Nm
12.9	137 Nm

The pallet system CENTREX and CENTREX kwik can easily be screwed onto the following machine table:

- T-slot table / slot spacing 63'er
- T-slot table / slot spacing 100's
- T-slot table / slot spacing 125'er
- Mounting table / 40's hole grid spacing
- Mounting table / 50 'hole grid spacing
- Mounting table / 100's hole grid spacing

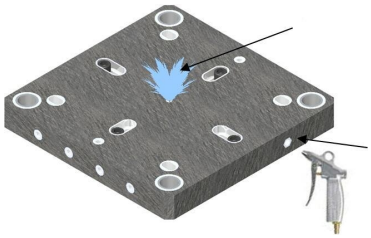


Fig. 12

NOTE!

If the carrier pallet aspirates by adhesion to the base plate, it is sufficient to make a short push off with the aid of a compressed air gun through the push-off hole.

6.2.2 Taking and aligning the base plate

The base plate can be used in three ways.

- Change in several clamping devices on a base plate.
  - The base plate must not be adjusted.
  - Only the carrier plate must be adjusted.
- Mounting several clamping devices on several machines [base plates] in exact position
  - The position of the base plate must be determined exactly.
  - The positon of the base plates may be touched in the position elements [CENTREX bushings].
- Mounting several clamping devices on several machines and additionally clock them by 90° [CENTREX kwik: by 180°].
  - The position of the base plate must be aligned exactly to the positon of the machine table.
  - The aligning of the base plate can be done in two ways:
    - by the positioning elements [very difficult]
    - with the use of the adjusting pallet [see optional accessories].

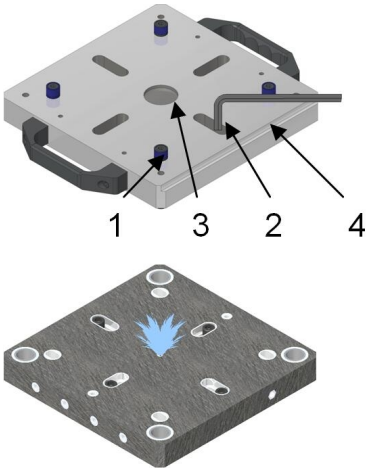


Fig. 13

Adjusting the base plate for the CENTREX pallet system:

1. Step: Screw the adjusting plate on the base plate [1].
2. Step: Put the base plate together with the adjusting plate on the machine table. Screw them on lightly [2].
3. Step: Adjusting the screwed on plates [base plate and carrier plate] into the fitting hole [3] and at the adjusting edge [4].
4. Step: Screw the base plate on the machine table [2].

6.2.3 Rotate the carrier plate by 90° [CENTREX pallet system]

If necessary the plate of the CENTREX pallet system may by rotated by 4 x 90°.

This must be realized e.g.

- with machining a special part on a machine with 3 axix or
- with clamping device that may be assembled in several positions, depending on the machining.

The pallets are designed with four cross-shaped pockets. These have the function to hold the anchor nuts outside of the base plate in the correct position.

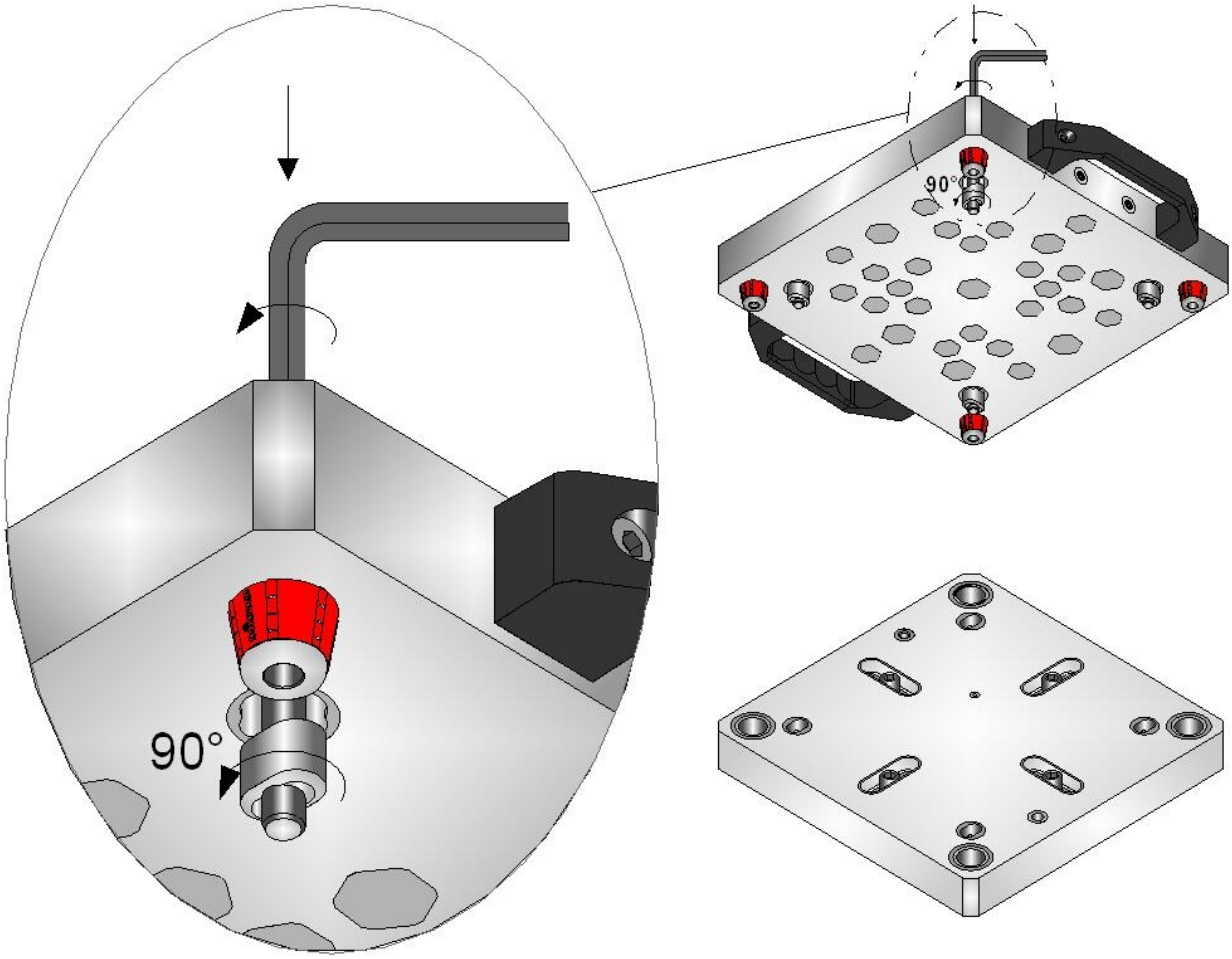


Fig. 14

To rotate the pallet by 90° follow these steps:

- Lift the four anchor nuts lightly by pressing ligthly on the screws by using a wrench.
- Rotate the anchor nuts by 90°.

NOTE!

In the new position they are also locked against rotating as in the original position.

Pallets without position locking may always be rotated by 180°.

6.2.4 Plates – locking the position

The position of the plates of the CENTREX and the CENTREX kwik can be locked against wrong inserting by a position locking [special screw and 3 threaded pins].

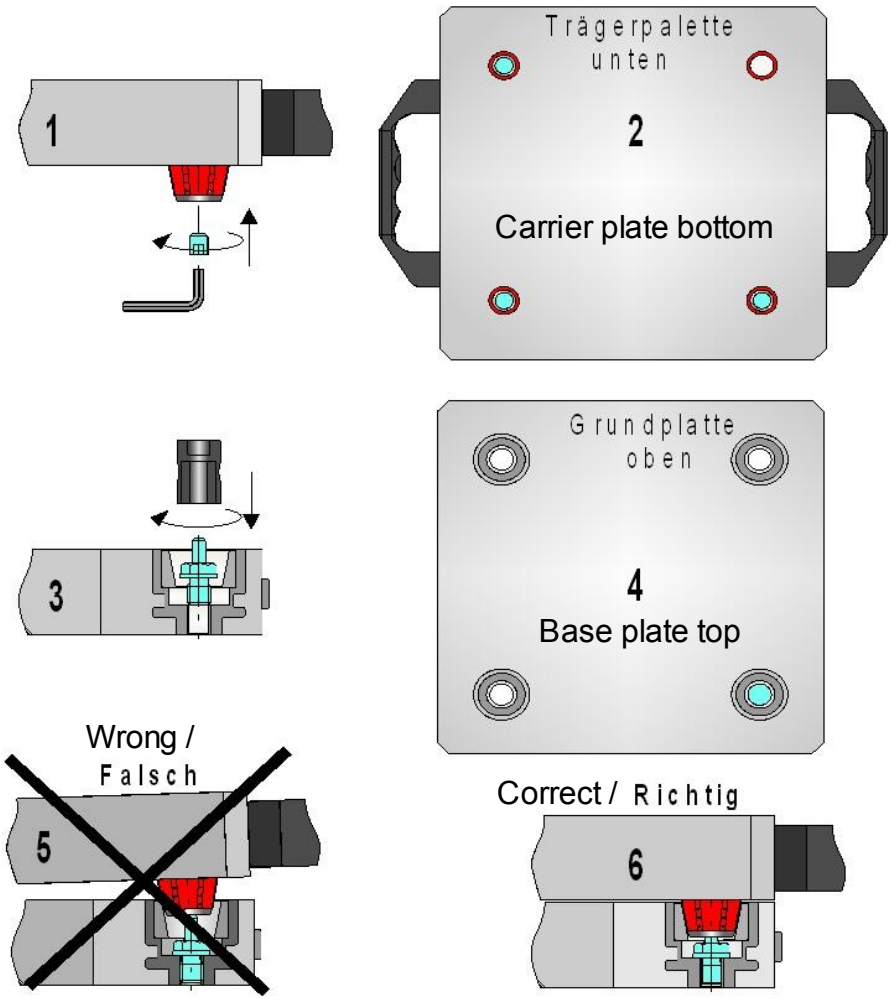


Fig. 15

1. Screw the special screw in on of the threads below the positioning bushing [see 3+4].
2. Screw the threaded pins in the positioning cones in which you may not change in [siehe 1+2].

NOTE!

If the plate is inserted in a wrong direction, the plate has a distance from the base plate of about 10 mm [see 5]. This shows that the plate is inserted incorrectly.

- In this condition, the pallet may not be attached under any circumstances!

If the plate must be inserted in this position, the threaded pin in the positioning cone must be removed!

6.2.5 Change-in the carrier plates [CENTREX pallet system]

For a highly accurate repeatability of the position of the CENTREX pallets note the following:

- The contact surfaces must be wiped with a lint-free cloth.
- The steel inserts must be inspected for damage.
- The control groove into the quick-change screw is visible.

The actuation of the quick change screws follow these steps:

1. Put the pallet on the base plate.

NOTE!

The four anchor nuts must be in the correct position!

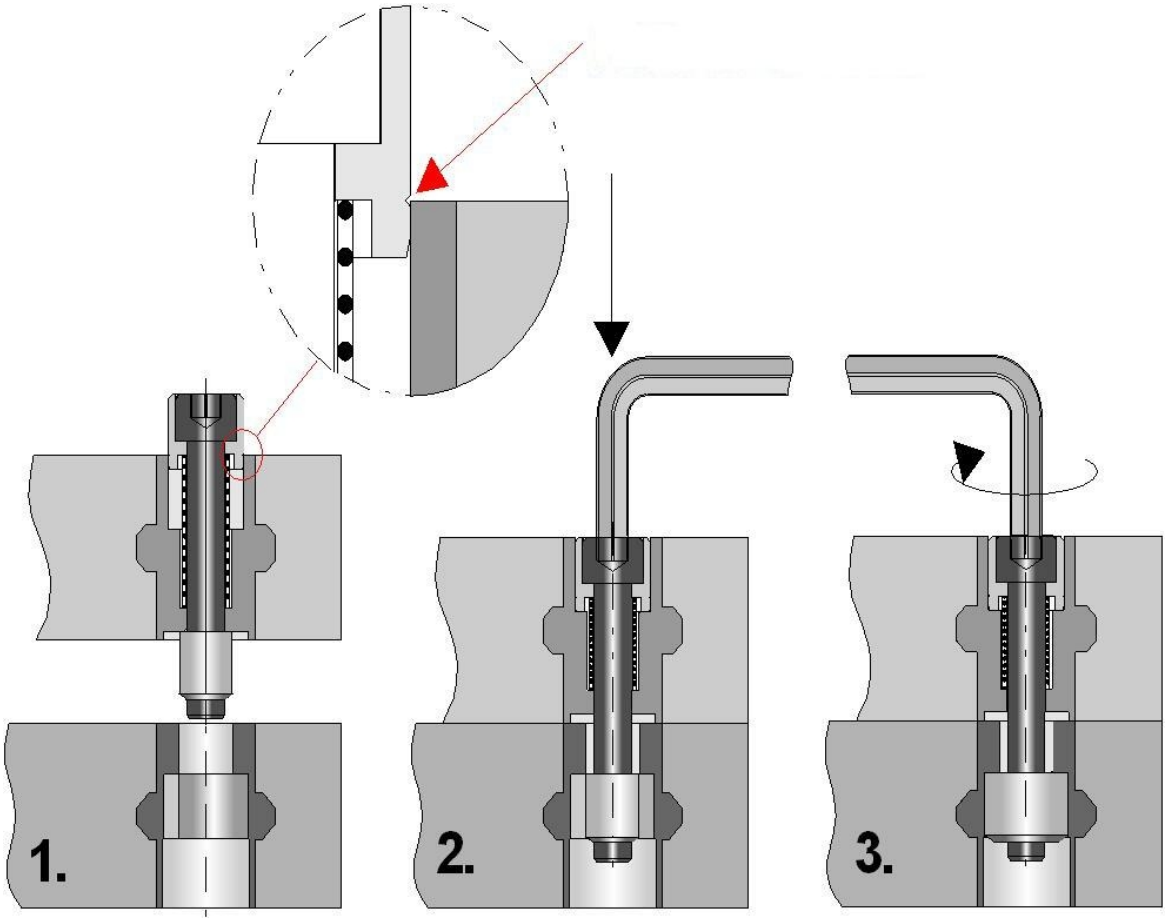


Fig. 16

2. Press the quick change screw into the screwing position by using a suitable wrench.
3. While pressing the quick change screw down tighten the quick change screw clockwise [tightening torque max: 59 Nm].

6.2.6 Change-in the carrier plates [CENTREX kwik pallet system]

For a highly accurate repeatability of the position of the CENTREX kwik pallets note the following:

- The contact surfaces must be wiped with a lint-free cloth.
- The steel inserts must be inspected for damage.
- The control groove into the quick-change screw is visible.

The actuation of the locking mechanism follows these steps:

1. Put the pallet on the base plate.

> **NOTE!**
>
> The four draw-in bolts must be in the correct position!

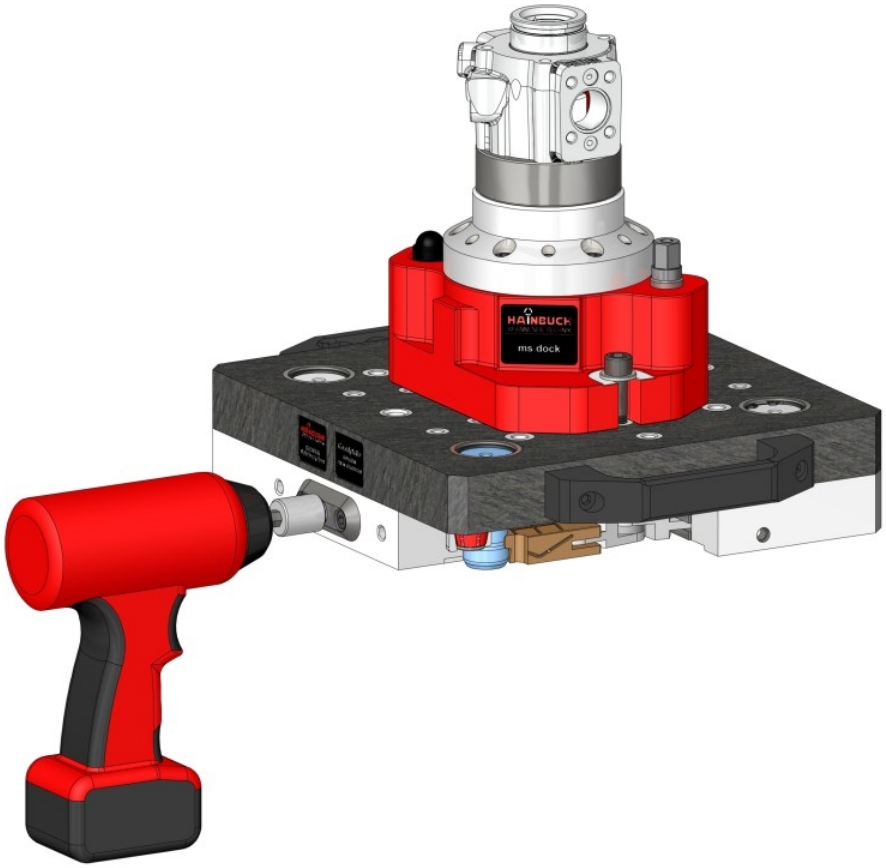


Fig. 17

NOTE!

By a too high tightening torque, the plate can be damaged.

- The maximum tightening torque for the hex screw is 20.0 kN.

2. Tighten the hex screw SW15 with a suitable wrench.

6.3 Inspections

NOTE!

Material damage due to damaged clamping devices!

A damaged, incomplete, or unbalanced clamping device can significantly damage or even destroy the machine tool and the work piece.

- Only install undamaged, complete, and precisely balanced clamping devices.
- If in doubt contact the manufacturer.

Ensure the following points prior to each installation and start-up of the product:

- All allen screws of the pallet system must be present and tightened with the proper tightening torque.
- All rubber segments must be intact; this means that they are neither torn, nor are they porous at any point.
- All edges and bearing surfaces are intact; this means that they are neither broken nor do they show any signs of wear.
- The set speed of the machine tool should not exceed the maximum permissible speed of the clamping device.
- The maximum drawtube force specified on the perimeter of the clamping device must not be exceeded.
- All mounting tools must be removed from the interior of the machine.

- There may not be anything between the base plate and the clamping pallet [with clamping device]. A plane-parallel support plate must be ensured.

6.4 Activities after production is concluded

1. Switch off the machine tool and safeguard it from being switched on again.
2. Open the protective door or hood.
3. Clean the base plate and the clamping pallet of chips and production residues with a soft, lint-free cloth.
4. Close the protective door or hood.

7 Disassembly, subsequent storage, disposal

If there is break in production that lasts longer than 3 days, or if the machine will be changed for other work pieces, the clamping device must be disassembled and properly stored in accordance with the manufacturer's specifications [see section »Transport, packaging, storage«].

Prior to disassembling:

- Remove fuels and auxiliary materials, as well as residual processing materials and dispose of these items in an environmentally-responsible manner.

7.1 Safety

WARNING!

Danger of injury due to falling components!

When mounting components can fall and cause severe injury and material damage.

- Two people are always required for this task.
- Use a crane.

7.1.1 Changing the carrier pallet [CENTREX pallet system]

To change the carrier pallet follow these steps:

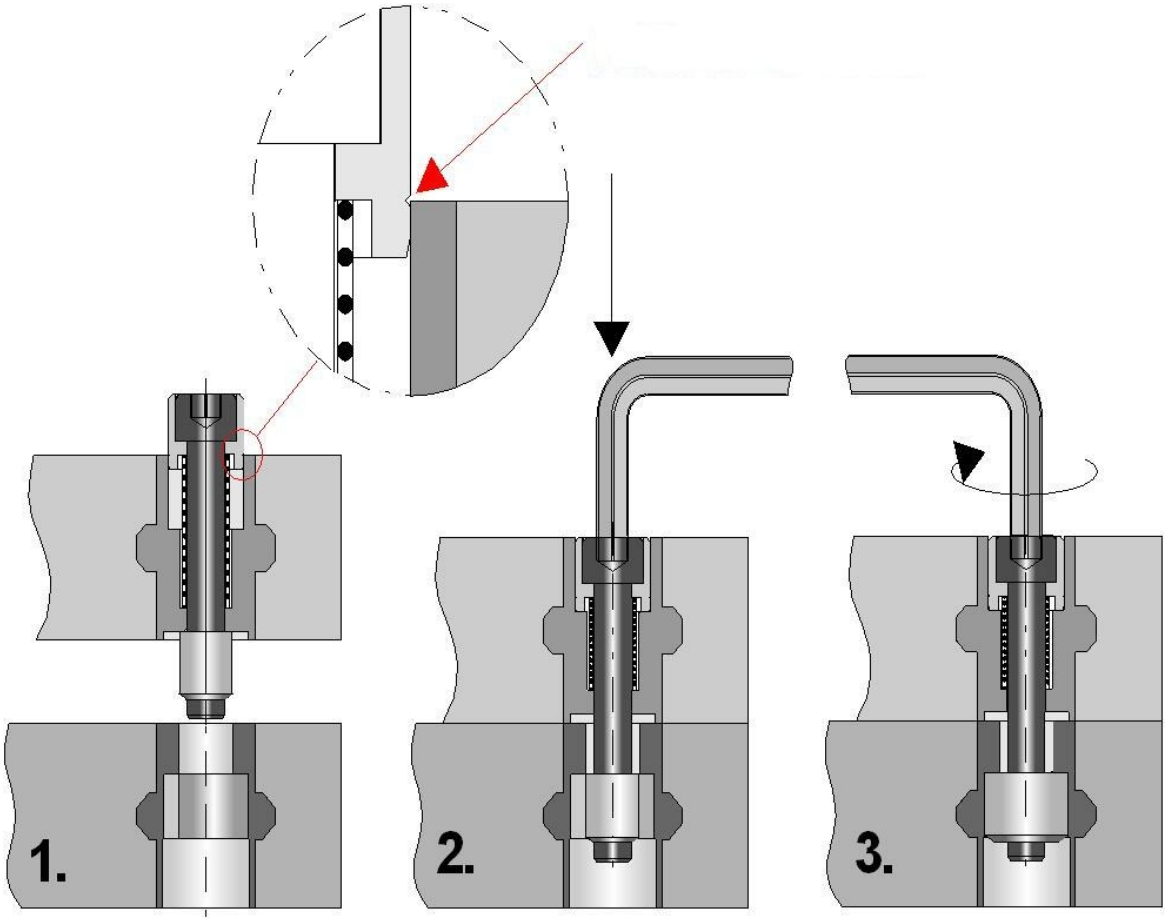


Fig. 18

NOTE!

The four anchor nuts must be in the correct position!

1. Press the anchor nuts into the screwing position by using a suitable wrench.
2. While pressing the anchor nuts screw down tighten the anchor nuts anti-clockwise.
3. Remove the pallet from the base plate.

NOTE!

For a highly accurate repeatability of the position of the CENTREX pallets note the following:

- The contact surfaces must be wiped with a lint-free cloth.
- The steel inserts must be inspected for damage.
- The control groove into the quick-change screw is visible.

7.1.2 Changing the carrier pallet [CENTREX kwik pallet system]

To change the carrier pallet follow these steps:

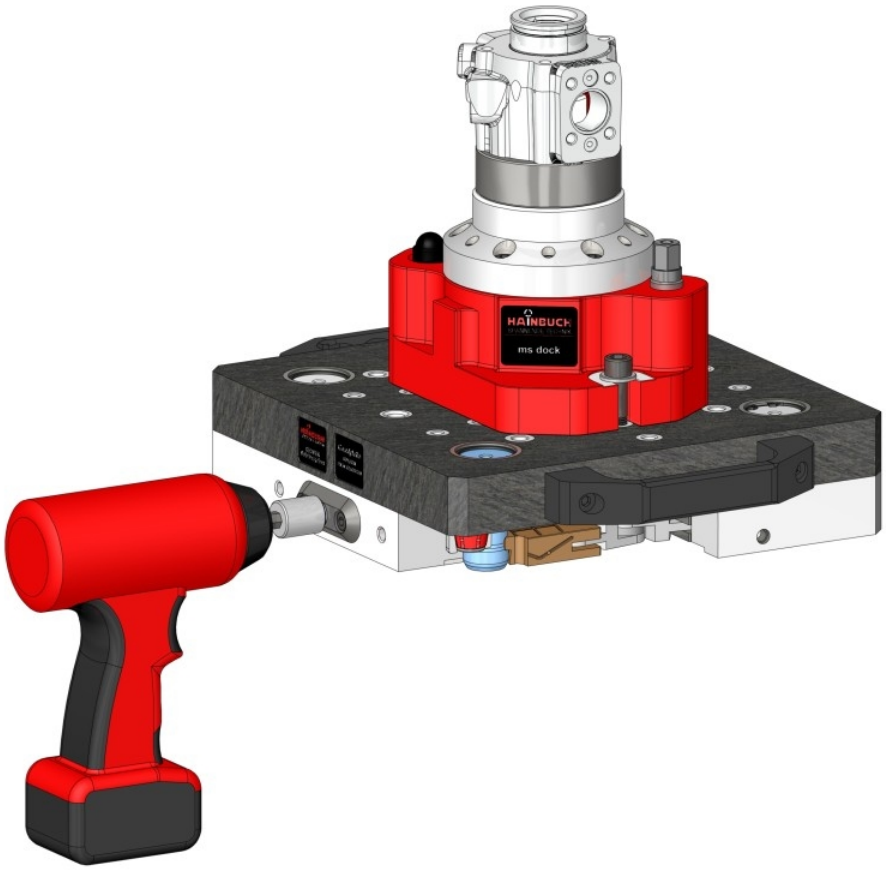


Fig. 19

NOTE!

The four draw-in bolts must be in the correct position!

1. Loosen and remove the hex screw SW15 by using a suitable wrench.
2. Remove the pallet from the base plate.

NOTE!

For a highly accurate repeatability of the position of the CENTREX kwik pallets note the following:

- The contact surfaces must be wiped with a lint-free cloth.
- The steel inserts must be inspected for damage.
- The control groove into the quick-change screw is visible.

7.1.3 Disassembly of the base plate

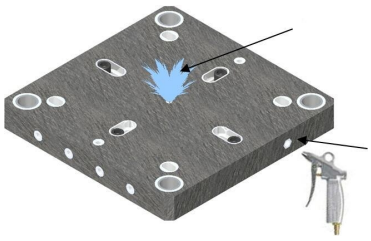


Fig. 20

NOTE!

If the carrier pallet aspirates by adhesion to the base plate, it is sufficient to make a short push off with the aid of a compressed air gun through the push-off hole.

7.2 Subsequent storage

The pallet system CENTREX and CENTREX kwik must be cleaned and treated with corrosion protection for subsequent storage [see section »Cleaning«].

NOTE!

The storage conditions are specified in the section »Transport, packaging and storage«.

7.3 Disposal

If a return or disposal agreement has not been concluded, then recycle disassembled components.

NOTE!

Composite materials!

For disposal clamping devices which include composite materials [mineral cast, CFK] must be returned at HAINBUCH!

Risk of injury due to leaking fluids!

Hydraulically or pneumatically operated clamping devices may contain residues of liquids. Uncontrolled leakage of fluids can lead to severe injuries.

- Open the pressure relief screw and drain remaining liquid.
- Discard the liquid.

NOTE!

Improper disposal causes environmental damage!

Lubricants and other auxiliary materials are subject to treatment as special waste, and should only be disposed of by approved specialist companies!

Local municipal authorities or specialized disposal companies provide information on environmentally-responsible disposal.

8 Maintenance

Environmental protection

Comply with the following instructions for environmental protection when performing maintenance work:

- At all lubricating points where lubricant is applied by hand, remove escaping, used, or excess grease, and dispose of it in accordance with applicable local regulations.
- Collect used oil in suitable containers and dispose of it in accordance with applicable local regulations.

8.1 Cleaning

NOTE!

Material damage due to cleaning with compressed air!

Cleaning the clamping device with compressed air can force metal chips into thread and grooves. This can damage or even destroy the pallet system.

- Never clean the pallet system CENTREX and CENTREX kwik with compressed air!

Execution only by a specialist!

- Auxiliary material required:
  - Ester-free, non-polar cleaning agent
  - Soft, lint-free cloth

8.2 Preservation

Execution only by a specialist!

- Special tools required:
  - Universal grease 2085/0003
  - Grease gun
  - Oil stone
  - Soft, lint-free cloth

1. Hone all the bearing surfaces of the product with an oil stone.
2. Lightly grease all interior and outer surfaces of the product. Remove excess grease with a cloth.
3. Pack the product airtight in foil. Place it on a level, impact-free storage location and safeguard it from falling.

8.3 Use of lubricant

With the usage of lubricant you may only use grease that corresponds to the requirements concerning bond, pressure-stability and solubility in lubricating coolant.
In addition no dirt particles may be in the grease; they cause run errors if they come in in-between two mating surfaces.
We recommend for this the following lubricant:

HAINBUCH grease

see product information

Alternatives:

Lubricant	Manufacturer	Product
Universal grease	MicroGleit	GP 355
	Klüber	QNB 50
	Zeller & Gmelin	DIVINOL SD24440
	Bremer & Leguill	RIVOLTA W.A.P.
Special grease	Klüber	MICROLUBE GL 261

8.4 Maintenance schedule

Maintenance tasks are described in the sections below that are required for optimal and trouble-free operation.

If increased wear is detected during regular inspections, then reduce the required maintenance intervals according to the actual indications of wear.

Contact the manufacturer, (see the service address on the back) if you have questions concerning maintenance tasks and intervals.

Interval	Maintenance task
Daily	Execute visual inspection. If there is heavy fouling, clean the pallet system CENTREX and/or CENTREX kwik [see section »Cleaning«].
	Visual inspection of the hoses and threaded union for damage, twisting and leaky seat.
Monthly	Clean the pallet system CENTREX and/or CENTREX kwik [see section »Cleaning«].

8.5 Maintenance tasks

If the pallet system CENTREX /CENTREX kwik is operated in accordance with the operating date on the type plate, and if the pallet system CENTREX / CENTREX kwik is assembled properly as specified in this manual, then this pallet system is virtually maintenance free.

8.6 Measures after successful maintenance

Execute the following steps after concluding maintenance work and before switching the system on:

1. Ensure that all previously removed protective devices and covers have been properly installed.
2. Ensure that all tools, materials, and other equipment items have been removed from the work area.
3. Clean the work area and remove any substances that may have escaped, such as liquids, processing material, or similar items.

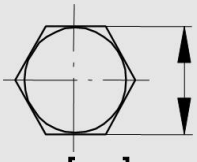
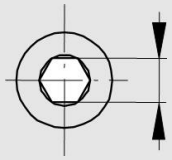
4. Ensure that all system safety devices are again functioning properly.

8.7 Bolt torque

Metric ISO thread

The guide values for bolt tightening torque for achieving the highest permissible pre-tension for metric ISO thread are specified in Nm in the table.

- Total friction coefficient μ_{tot} = 0,12
- 90% utilization of the apparent limit of elasticity

Diameter	 [mm]	 **[mm]**	**Torque for screw quality 10.9 [Nm]**
M 4	7	3	4
M 5	8	4	7
M 6	10	5	12
M 8	13	6	25
M 10	17	8	50
M 12	19	10	100
M 16	24	14	220
M 20	30	17	400
M 24	36	19	600

The table shows the maximum permissible values and does not include any other safety factors. Knowledge of the applicable guidelines and configuration criteria are the prerequisites.

9 Trouble shooting

Possible fault causes and the tasks to correct these faults are described in the following section.

If faults occur more frequently, the maintenance intervals must be shortened to correspond to the actual system load.

Contact the manufacturer if there are faults that cannot be corrected by following the instructions below; see the service address on the back of this operating instruction.

9.1 Safety

Trouble shooting

The following always applies:

1. For faults that pose a direct danger for personnel and or property immediately execute the emergency-stop function.
2. Determine the cause of the fault.
3. If correction of the fault requires work in the danger zone, put the machine in set-up mode.
4. Immediately inform the responsible parties at the installation site of the fault.
5. Depending on the type of fault, either have authorized specialized personnel correct the fault, or correct it yourself.

   The trouble shooting table provided below lists personnel who are authorized to correct the fault.
6. If there is a fault that was not caused by the clamping device the cause of the fault may be in the machine area. See the operating manual for the machine in this regard.

9.2 Trouble shooting table

Fault	Possible cause	Fault correction	Corrected by
Problems while dismantling the CENTREX pallet system.	Contamination at the quick actuating screws	Release the pallet with power, otherwise contact HAINBUCH. Clean the quick actuating screws.	Specialist
Problems while dismantling the CENTREX kwik pallet system.	Contamination at the draw-in bolt	Release the pallet with power, otherwise contact HAINBUCH. Clean the draw-in bolt.	Specialist
Dimensional deviation on the work piece	Contamination on the CENTREX bushing and/ or taper	Clean the CENTREX bushing and the CENTREX taper.	Specialist
	Fault concentricity or run-out of the clamping device	Check the concentricity and the run-out of the clamping device, correct if necessary.	Specialist

9.3 Start-up after corrected fault

After correcting the fault execute the following steps to start up again:

1. Reset the emergency-stop device
2. Acknowledge the fault on the machine tool controller
3. Ensure that no one is in the danger zone
4. Start the machine tool

10 Appendix

10.1 Service Hotline

Order Hotline

Quickly ordered and delivered. A call is all it takes:
+49 [0]7144. 907-333

Schedule Hotline

Current status of your order? Just call:
+49 [0]7144. 907-222

24h emergency call

Has there been a crash or other technical emergency?
Our experts are at your service around the clock:
+49 [0]7144. 907-444

10.2 Representatives in Germany and Europe

The sales partners and service employees listed below are available for further consultation or support.

Overview of German postal codes:

J	010 – 049	C	400 – 479	O	710 – 719	H	868 – 879
M	060 – 089	A	480 – 499	D	720 – 729	D	880 – 899
J	090 – 189	C	500 – 549	L	730 – 739	E	900 – 914
I	190 – 289	N	550 – 559	M	740 – 479	L	915 – 918
B	290 – 319	C	560 – 569	F	750 – 799	E	919
A	320 – 339	K	570 – 599	H	800 – 839	G	920 – 949
B	340 – 349	N	600 – 659	G	840 – 851	E	950 – 979
N	350 – 369	F	660 – 699	H	852 – 866	M	980 – 999
B	370 – 399	L	700 – 709	L	867		

10.2.1 Germany

A Werner Bock KG
Commercial Agency
Neue Reihe 2
DE-33699 Bielefeld
Phone +49 [0]521. 92458-0
Fax +49 [0]521. 92458-99
E-mail: bockkg@gmx.de
Internet: www.werner-bock-kg.de

B Bock & Strothmann GmbH
Commercial Agency
Berliner Allee 49
DE-30855 Langenhagen
Phone +49 [0]511. 781068
Fax +49 [0]511. 782960
E-mail: vertrieb@bockundstrothmann.de
Internet: www.bockundstrothmann.de

C Jörg Fedtke
Sales Representative
HAINBUCH GMBH
Kunkelsberg 2
DE-45239 Essen
Phone +49 [0]7144. 907-661
Fax +49 [0]201. 2463-839
E-mail: joerg.fedtke@hainbuch.de

D Uwe Fischer
Sales Representative
HAINBUCH GMBH
Im Apfentäle 25
DE-72525 Münsingen-Auingen
Phone +49 [0]7144. 907-662
Fax +49 [0]7381. 183783
E-mail: uwe.fischer@hainbuch.de

E Thomas Helfer GbR
Commercial Agency
Gerwigstraße 4
DE-76437 Rastatt
Phone +49 [0]7222. 916231
Fax +49 [0]7222. 916240
Mobile +49 [0]171. 2032559
E-mail: helfer.industrievertretung@t-online.de

F Anika Hensen
Sales Representative
HAINBUCH GmbH
Erdmannhäuser Straße 57
DE-71672 Marbach
Phone +49 [0]7144. 9070
Fax +49 [0]7144. 18826
E-mail: anika.hensen@hainbuch.de

G Thomas Hummel
Sales Representative
HAINBUCH GMBH
Waldstraße 22b
DE-93197 Zeitlarn
Phone +49 [0]7144. 907-674
Fax +49 [0]7144. 907-874
E-mail: thomas.hummel@hainbuch.de

H Michael Kopp
Sales Representative
HAINBUCH GMBH
Gögginger Straße 98
DE-86199 Augsburg-Göggingen
Phone +49 [0]7144. 907672
E-mail: michael.kopp@hainbuch.de

I Künne Zerspanungstechnik
Commercial Agency
Grootkoppel 45
DE-23858 Reinfeld
Phone +49 [0]4533. 208100
Fax +49 [0]4533. 208116
Mobile +49 [0]170. 9621139
E-mail: info@kuenne-zerspanungstechnik.de
Internet: www.kuenne-zerspanungstechnik.de

J Henry Miersch
Sales Representative
HAINBUCH GMBH
Feldstraße 51
DE-06917 Jessen
Phone +49 [0]7144. 907-664
Fax +49 [0]3537. 200455
E-mail: henry.miersch@hainbuch.de

K Ulrich Remmel
Commercial Agency
Gildestraße 18
DE-58791 Werdohl
Phone +49 [0]2392. 9383-0
Fax +49 [0]2392. 9383-17
E-mail: info@remmel.de
Internet: www.remmel.de

L Renee Reuter
Sales Representative
HAINBUCH GMBH
Brühlstraße 7
DE-73252 Lenningen
Phone +49 [0]7144. 907-670
Fax +49 [0]7026. 371871
E-mail: renee.reuter@hainbuch.de

M Jörg Schlag
Sales Representative
HAINBUCH GMBH
Hopfenweg 2
DE-04420 Frankenhain
Phone +49 [0]7144. 907-665
Fax +49 [0]341. 9456468
E-mail: joerg.schlag@hainbuch.de

O Jörg Tittel
Sales Representative
HAINBUCH GMBH
Wunnensteinstraße 10
DE-71711 Steinheim/Murr
Phone +49 [0]7144. 907-668
Fax +49 [0]7144. 819864
E-mail: joerg.tittel@hainbuch.de

N Michael Simon
Sales Representative
HAINBUCH GMBH
Am Tannenberg 8
DE-63776 Mömbris
Phone +49 [0]7144. 907-667
Fax +49 [0]6029. 994932
E-mail: michael.simon@hainbuch.de

Thomas Klumpp
Technical Consultant
HAINBUCH GMBH
Hahnbergweg 15
DE-72270 Baiersbronn
Phone +49 [0]7144. 907-663
Fax +49 [0]7144. 291131
E-mail: thomas.klumpp@hainbuch.de

Carsten Zander
Technical Consultant
HAINBUCH GMBH
Friedrich-Ebert-Straße 9
DE-31848 Bad Münder
Phone +49 [0]7144. 907-669
Fax +49 [0]5042. 506751
E-mail: carsten.zander@hainbuch.de

10.2.2 Europe

Austria
GGW Gruber & Co. GmbH
Kolingasse 6
1090 Vienna
Phone +43 [0]1. 3107596-0
Fax +43 [0]1. 3107596-31
E-mail: ggw@gruber-ing.at
Internet: www.gruber-ing.at

Belgium
BIS Technics bvba/sprl
Zevenputtenstraat 20
3690 Zutendaal
Phone +32 89518890
Fax +32 89518899
E-mail: info@bistechnics.com
Internet: www.bistechnics.com

Czech Republic, Slovakia
TMC CR s.r.o.
Masná 27/9
60200 Brno
Phone +420 548214572
Fax +420 548217219
E-mail: info@tmccr.cz
Internet: www.tmccr.cz

Denmark
Jørn B. Herringe A/S
Ramsømagle
Syvvejen 31
4621 Gadstrup
Phone +45 46170000
Fax +45 46170001
E-mail: sales@jbh-tools.dk
Internet: www.jbh-tools.dk

Estonia, Latvia, Lithuania
DV-Tools OÜ
Peterburi tee 34/4
11415 Tallinn
Phone +372 6030508
Fax +372 6030508
E-mail: info@dv-tools.ee

France
HAINBUCH France SNC
Equipements de machines-outils
ZI Lons-Perrigny
1600, Route de la Lième
39570 Lons-le-Saunier
Phone +33 384876666
Fax +33 384876677
E-mail: info@hainbuch.fr
Internet: www.hainbuch.com

Great Britain
HAINBUCH UK Ltd.
6 Newmarket
Keys Business Village, Keys Park Road
Hednesford, Staffordshire
WS12 2HA
Phone +44 1543 478710
Fax +44 1543 478711
Mobile +44 7980212784
E-mail: nick.peter@hainbuch.co.uk
Internet: www.hainbuch.com

Greece
PAPET Papadopoulos GbR
Hauptstraße 75
DE-73061 Ebersbach/Fils
Phone +49 71635858/530668
Fax +49 716352265
E-mail: paris@papet-technologies.de

Ireland
Machine Shop & Engineering Supplies Ltd.
11 Vale View Lawn - The Park
Cabinteely, Dublin 18
Phone +353 12847003
Fax +353 12857955
E-mail: machshop@indigo.ie

Finland
Oy Maanterä Ab
PL 70 Keinumäenkuja 2
01510 Vantaa
Phone +358 29006130
Fax +358 290061130
E-mail: maantera@maantera.fi
Internet: www.maantera.fi

France
Representative for: Haute Savoie
Utilis France Sarl
597, Avenue du Mont Blanc
74460 Marnaz
Phone +33 450963630
Fax +33 450963793
E-mail: contact@utilis.com
Internet: www.utilis.com

Great Britain
Leader Chuck Systems Ltd.
9 Century Park
Birmingham, B9 4 NZ
Phone +44 1217714843
Fax +44 1217710966
E-mail: information@leaderchuck.com
Internet: www.leaderchuck.com

Hungary
GGW Gruber & Co. GmbH
Kolingasse 6
1090 Vienna
Phone +43 [0]1. 3107596-0
Fax +43 [0]1. 3107596-31
E-mail: ggw@gruber-ing.at
Internet: www.gruber-ing.at

Italy
HAINBUCH Italia srl
Via Caduti di Nassiriya 5
22036 Cantu [Co]
Phone +39 0313355351
Fax +39 031611570
E-mail: info@hainbuchitalia.it
Internet: www.hainbuchitalia.it

Netherlands
BIS Specials
[Brandenburg Industry Service Dongen BV]
Dreef 7
6996 BA Drempt
Phone +31 313482566
Fax +31 313482569
E-mail: info@bisspecials.com
Internet: www.bisspecials.com

Poland
BIM Sp.z.o.o.
ul. Wysogotowska 9
62081 Przezmierowo
Phone +48 616232041
Fax +48 616232040
E-mail: bim@bazafirm.pl

Russia
LLC Rosna Engineering
Melnichnaya 4
192019 St. Petersburg
Phone +812 4129213
Fax +812 4125586
E-mail: rosna@rosna.spb.ru
Internet: www.rosna.spb.ru

Sweden
HAINBUCH Svenska AB
Kemistvägen 17
18379 Täby
Phone +46 87327550
Fax +46 87327650
E-mail: hainbuch@hainbuch.se
Internet: www.hainbuch.com

Turkey
Hidkom
Organize Sanayi Bölgesi
75. Yil CD. Demirciler Sit. B Blok No.2
16159 Nilüfer / Bursa
Phone +90 2242438292
Fax +90 2242436365
E-mail: hidkom@tr.net
Internet: www.hidkom.com

Norway
Onstad Maskin A/S
Chr. H. Blomsgt. 13
3717 Skien
Phone +47 35532373/74
Fax +47 35532375
E-mail: postmaster@onstadmaskin.no
Internet: www.onstadmaskin.no

Romania
Banatech srl
Carasului Str. 26
325400 Caransebes
Phone +40 255517175
Fax +40 355814125
Mobile +40 749220553
E-mail: office@banatech.ro
Internet: www.banatech.ro

Spain
ATM Asistentes Tecnologicos del
Mecanizado, S. L.
Isaac Albeniz, 29
08402 Granollers [Barcelona]
Phone +34 938606572
Fax +34 938791689
E-mail: atm.sl@atmbarcelona.com

Switzerland
Utilis Müllheim AG
Präzisionswerkzeuge
Kreuzlinger Strasse 22
CH-8555 Müllheim
Phone +41 [0]52. 7626262
Fax +41 [0]52. 7626200
E-mail: nfo@utilis.com
Internet: www.utilis.com

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HAINBUCH SPANNENDE TECHNIK

HAINBUCH GMBH
SPANNENDE TECHNIK
PO Box 1262 · DE-71667 Marbach
Erdmannhäuser Straße 57 · DE-71672 Marbach
Phone +49 [0]7144. 907-0
Fax +49 [0]7144. 18826
verkauf@hainbuch.de
www.hainbuch.com
24h-Emergency call +49 [0]7144. 907-444

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